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First Named
Inventor : Martin L. Plumer et al.

Appln. No.: 10/039,207

Filed : January 4, 2002

For : WRITING ELEMENT WITH NO
RETURN PATH

Docket No.: S01.12-0846/STL 10285.00

Group Art Unit: 2652

Examiner: Jefferson
A. Evans

RESPONSE

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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PATENT ATTORNEY

This is in response to the Office Action mailed August 23, 2004. Claims 1, 3-7, 9-12, 14-19 and 21-23 are pending in the application, of which the Examiner rejected claims 1, 4, 5, 7, 10, 11, 17, 18, 22 and 23. Reconsideration of the application is respectfully requested.

Rejections - 35 U.S.C. §103

In section 2 of the Office Action, the Examiner rejected claims 1, 4, 5, 7, 10, 11, 17, 18, 22 and 23 under 35 U.S.C. §103(a) as being unpatentable over Tanaka et al. (U.S. Patent No. 6,128,166) in view of Cohen et al. (U.S. Patent No. 5,703,740) and/or Chang et al. (U.S. Patent No. 6,542,331). Applicants respectfully disagree with the Examiner's assessment of the cited references.

The Examiner found FIG. 7 of Tanaka et al. to disclose "a single write pole 26 separated from a write coil 27 by an

insulating material, and a MR element 24 between shield layers 23" in FIG. 7, which is a sectional view of a recording/reproducing system taken at an unknown location. However, FIG. 7 is not provided to describe the details of the structure of the system. Rather, FIG. 7, as evidenced by the corresponding written description, is provided for the purpose of describing a relationship between a recording track width (T_w) of the recording head, a reproduction track width T_r of the reproducing head, a gap length (g), and a pitch (T_p) of the recording tracks of the recording medium. As a result, the illustration of FIG. 7 is a highly simplified illustration of the system whose focus is not on the structure of the cited write pole 26, but on the relationships provided above.

Furthermore, Tanaka et al. do not provide any discussion regarding the structure of the "recording main magnetic pole film 26" other than stating that it is formed of FeSi. Thus, Tanaka et al. fail to provide any disclosure that "the magnetic signals are not conducted to the writing pole [or perpendicular writing means] at the back gap region through a return pole element", as described in independent claims 1, 7 and 17 of the present application. As a result, it can not be known from the disclosure of Tanaka et al. that the magnetic recording/reproducing system of FIG. 7 lacks a return pole element that operates to conduct magnetic signals to the write pole 26 at the back gap region, as in conventional designs. Even so, the Examiner contends that the depicted structure constitutes sufficient disclosure of the significantly non-conventional writing pole of claims 1, 7 and 17.

Applicants believe that it is improper to conclude that the depiction in FIG. 7 of a cross-section of the system of Tanaka et al. taken at an unknown location, constitutes enabling disclosure of the writing elements of claims 1, 7 and 17, less the helical

conducting coil, particularly when Tanaka et al. fail to provide any support for the contention that in its system "magnetic signals are not conducted to the writing pole [or perpendicular writing means] at the back gap region through a return pole element", as described in claims 1, 7 and 17 of the present application. Applicants submit that, due to the unconventional nature of the writing element design described in claims 1, 7 and 17 of the present application, it would be more reasonable to assume that such a return pole element exists and would be shown in a detailed sectional view of the recording/reproducing system of Tanaka et al., possibly taken at another location, than it is to assume that it does not.

Although the Examiner identified Tanaka et al. as failing to disclose the claimed helical coil arrangement of claims 1, 7 and 17, the Examiner found such a coil arrangement to be disclosed in Cohen et al. and/or Chang et al. The Examiner also found that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the coil of Tanaka et al. take on a helical arrangement "to provide an increased number of turns and to increase efficiency", as discussed in Chang et al. at Col. 3, line 67 - Col. 4, line 6). Applicants respectfully disagree with the Examiner's finding.

Applicants submit that there is insufficient motivation or suggestion to combine Cohen et al. or Chang et al. with Tanaka et al. in an attempt to form the writing elements described in independent claims 1, 7 and 17 of the present application. The Federal Circuit has stated, "virtually all [inventions] are combinations of old elements." *Environmental Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 698, 218 USPQ 865, 870 (Fed. Cir. 1983). Accordingly, in a proper obviousness determination, "[w]hether the changes from the prior art are 'minor', . . . the changes must be evaluated in terms of the whole invention,

including whether the prior art provides any teaching or suggestion to one of ordinary skill in the art to make the changes that would produce the patentee's . . . device." *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 935, 15 USPQ2d 1321, 1324 (Fed. Cir.), *cert. denied*, 498 U.S. 920 (1990). This includes what could be characterized as simple changes, as in *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984) (Although a prior art device could have been turned upside down, that did not make the modification obvious unless the prior art fairly suggested the desirability of turning the device upside down.)

The Examiner's finding that Cohen et al. and Chang et al. teach that helical coil arrangements can be used to "provide an increased number of turns and to increase efficiency", is insufficient to provide the necessary motivation to combine the references. The mere suggestion that increased efficiency may be possible in the writing element of Tanaka et al. if it was modified to include a helical coil arrangement, does not, by itself, provide the required motivation to make the modification, since Tanaka et al. fail to express any need for the suggested benefits. In particular, Tanaka et al. fail to provide any suggestion of a need for a helical coil arrangement having an increased number of turns, or one having increased efficiency. Accordingly, Tanaka et al. fail to provide any suggestion or motivation to modify its writing element to include the helical coil arrangement of either Cohen et al. or Chang et al.

Additionally, both Cohen et al. and Chang et al. utilize magnetic writing elements that include return pole elements (see magnetically conductive elements 26 and 59 in FIGS. 6(b), 7(a) and 8 of Cohen et al.; pole P1 shown in FIGS. 5-11 of Chang et al.). Accordingly, neither Cohen et al. nor Chang et al. provide any suggestion of using their helical coil arrangements with

writing elements that lack such return pole elements. As a result, if one assumes that the Examiner's interpretation of Tanaka et al. is correct (i.e., that Tanaka et al. discloses a writing element that lacks such return pole elements), there is no motivation or suggestion to make the modification.

Furthermore, the Examiner found Tanaka et al. as lacking a "back area" connecting a pair of poles that would allow the structure for multiple coil turns. However, as pointed out by the Examiner, Tanaka et al. provide a short side extension or nub around which the coil 27 surrounds. Accordingly, if Tanaka et al. had a need for additional coil turns around the nub, one would assume that the nub would be extended to accommodate such additional turns. However, Tanaka et al. fail to express any motivation for additional coil turns, or suggest modifying the nub of writing element to accommodate them.

Without such a modification, the system of Tanaka et al., illustrated in FIG. 7, cannot support a helical coil arrangement, or additional coils, due to a lack of space, since it only provides room for a single loop of coil 27 around the nub of the main recording magnetic pole film 26. Thus, the system of Tanaka et al. would require a substantial redesign to extend the nub in order to accommodate the helical coil arrangement of either Cohen et al. or Chang et al. Such a substantial redesign negates any suggestion of making the modification. See *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (C.C.P.A. 1959).

As a result, the Examiner must rely upon an Applicants' disclosure to provide the suggestion or motivation for the combination in order to discern any "obviousness" of the present invention. Such use of hindsight is improper. *In re Lee*, 61 USPQ2d 1430 (Fed. Cir. 2002) ("It is improper, in determining whether a person of ordinary skill in the art would have been led to this combination of references, simply to '[use] that which

the inventor taught against its teacher.'" (quoting *W.L. Gore v. Garlock, Inc.*, 220 USPQ 303, 312-13 (Fed. Cir. 1983)).

Accordingly, Applicants submit that independent claims 1, 7 and 17 are non-obvious in view of Tanaka et al. and Cohen et al. and/or Chang et al. Additionally, Applicants submit that all claims depending from independent claims 1, 7 and 17 are allowable as being dependent from allowable base claims, and request that the rejections be withdrawn.

Conclusion

In view of the above comments and remarks, it is believed that the present application is in condition for allowance. Consideration and favorable action is respectfully requested.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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